The Unified Electronic Patient Record Project (UEPR): Integrating University Hospitals in São Paulo

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The Brazilian Health Care System does not have a unique patient identifier. Instead of having to visit a GP priory, as in Europe and other Latin American countries, in Brazil patients can go directly to a public hospital, for an outpatient visit that may or may not lead to a hospital admission. When admitted, the patient receives a patient ID. This identifier is unique only within a given hospital. If a patient is admitted in several hospitals, they will, therefore, have several patient IDs.

That situation may cause harm to the patient - they may be, over-exposed to X-ray, or even undergo twice an unnecessary invasive exam. The lack of a unique identifier leads to wasting resources where they are most needed, as public hospitals live on a very limited budget.

São Paulo is the largest city in Latin America, with some 12 million inhabitants. Its two largest public hospitals are the Hospital das Clinicas (HC), of São Paulo State University, and Hospital São Paulo (HSP), of Federal University of São Paulo. The former is the largest hospital in Latin America, with 6 Institutes and 2,200 beds. The latter is the second largest hospital in São Paulo, with 800 beds and 150,000 out-patient visits a year. Both hospitals are referral training centers for sophisticated procedures such as heart and liver transplantation.

It is essential that at least these two hospitals share information about their patients.

The UEPR project aims at creating a common electronic patient record for these two hospitals. In order to deal with this highly complex project, some decisions were made at very early stages. They involve the complete adherence to international standards for the definition and description of EPR contents; the adoption of robust software and hardware architectures, based on open system and open standards, and the adoption of smart cards as "intelligent" Id-cards.

In order to test all these technologies and their impact it was decided to build a small prototype to exchange both inpatient and outpatient data across the Heart Institute of HC and the Cardiological Clinic of HSP.

To carry out the project, a multidisciplinary and inter-institutional team was set up. One of the first tasks this group was faced with was to agree upon a minimum patient data-set that would be shared between the two hospitals.

It was decided to use a kind of a web address to identify the patient. Each institution keeps its internal patient number, but the patient ID stored in the patient's smart card, is a larger identifier that also contains the institution identification. Each patient would only receive one card valid for both institutions. Before issuing any patient cards a *watchdog* application searches both institution's databases to verify if the patient already has a card. The query looks for those attributes proposed for the master patient index (MPI): patient's identification plus some demographical data. The minimum data set is composed of: Patient Identification, Diagnosis, Procedures, Reports, Medication and Programmed returns.

This data set follows the ASTM and HL7 standards and, whenever available, Brazilian standards.

A great deal of effort is being done in building the project infrastructure. The most rewarding result is the ability to put two different teams together and making a commitment to a higher standard to be able to communicate. HC and HSP use the same relational database, which makes integration easier. An HL7 module is also being built to allow other partners to enter the project. The authors believe that a model that can accommodate the needs of both HC and HSP is a suitable candidate for a paradigm for the whole São Paulo State and, probably, for Brazil.

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